



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/505,453

09/01/2004

Yasunori Miki

P25880

8270

7055 7590 10/29/2009
GREENBLUM & BERNSTEIN, P.L.C.
1950 ROLAND CLARKE PLACE
RESTON, VA 20191

EXAMINER

ELVE, MARIA ALEXANDRA

ART UNIT

PAPER NUMBER

3742

NOTIFICATION DATE

DELIVERY MODE

10/29/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gbpatent@gbpatent.com
pto@gbpatent.com



UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/505,453
Filing Date: September 01, 2004
Appellant(s): MIKI ET AL.

Bruce H. Bernstein
Greenblum & Bernstein, P.L.C.
1950 Roland Clarke Place
Reston, VA 20191
For Appellant

EXAMINER'S ANSWER

Art Unit: 3742

This is in response to the appeal brief filed 7/6/09 appealing from the Office action mailed 7/14/08.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,712,625	Saito et al.	3-2004
5,957,736	Moriuchi et al.	9-1999
4,772,773	Hashimoto et al.	9-1988
05-90835	Kawabe	10-1993
06-204377	Uchida et al.	7-1994

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 6-16 & 20-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Saito et al. (USPN 6,712,625).

Saito et al. discloses:

An electronic component is obtained by forming a primer plating layer of a material which is poorly wettable to a weld brazing

Art Unit: 3742

material 3 on a base member 11X of a contact 11 having a terminal section 111 for brazing and a contact section 112, and then forming a finish plating layer of a material which is highly wettable to the weld brazing material on the primer plating layer. An exposed region of the poorly wettable primer plating layer is formed thereafter by **selectively removing a portion of the finish plating layer at the terminal section 111 and served as an arresting region** for arresting the weld brazing material 3 from creeping up and migrating along the highly wettable plating layer in brazing the terminal section 111 to the brazing pad 22 of a wiring board 2. (abstract)

For the material of which the base member of the contact 11 is made, where the exposed surface region of the base member is utilized as the arresting means, it is preferable to use copper, copper alloy such as Cu--Ti, Cu--Be, Cu--Sn, Cu--Mg, **Cu--Ni**, and Cu--Zn alloy which may contain P or Si as additives, and other metals such as Co, Mn, Pb, Al, Fe, and SUS. As to the finish plating material applied to the surface of the contact 11, it is preferably to use gold, tin or tin alloy such as Sn--Ag, Sn--Cu, Sn--Cu--Ag alloy, and lead or lead alloy such as Pb--Sn alloy, and palladium or palladium alloy such as Pd--Ni, Pd--Co alloy. (col. 3, lines 50-61)

According to still another aspect of the invention, **a primer plating layer comprising a nickel alloy, such as Ni--P, Ni--S, or Ni--B alloy**, may be applied to the surface of the base member of the contact 11 prior to forming the finish plating layer so as to enhance fastened formation of the finish plating. (col. 3, lines 62-67)

...feasible to form a contact with terminal section and contact section in any desirable shape by molding of any suitable material, by forming a Ni alloy layer all over the surface of the contact through electro-less plating, by forming a finish gold plating on the primer plating, and by removing a part of the gold plating at the terminal section to thereby obtain an exposed portion 114 of the primer plating acting as the arresting means. (col. 4, lines 7-15)

The process of **selectively removing a portion of the highly wettable layer formed on the surface of the contact 11 to define the poorly wettable exposed portion 114** may be easily carried out with a good processing positional precision by applying the

Art Unit: 3742

mechanical cutting or grinding (machining) technique, electric discharge machining technique, electron-beam machining technique or **laser beam machining** technique to the region in which the poorly wettable exposed portion 114 is to be formed. (col. 4, lines 24-33)

In this embodiment, a portion of the highly wettable region composed of a finish plating layer 111A formed on the surface of the contact 11 is selectively removed in the shape of a band or swath to expose the corresponding portion of the underlying primer plating layer of the terminal section 111 to thereby define a poorly wettable exposed or bare portion 114. (col. 5, lines 9-15)

FIG.6a

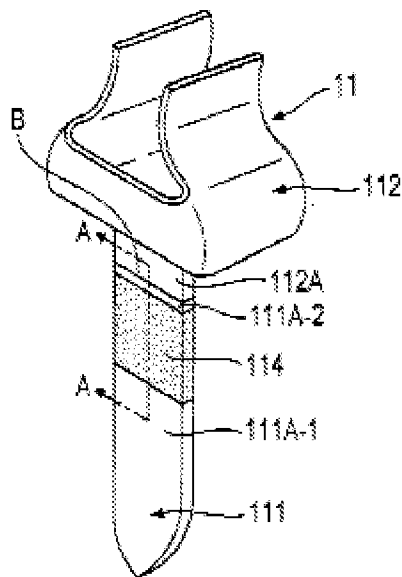


FIG.6b

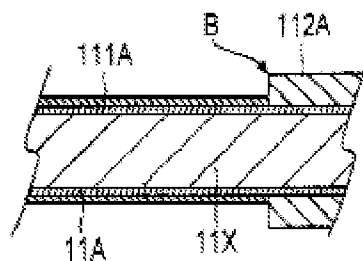
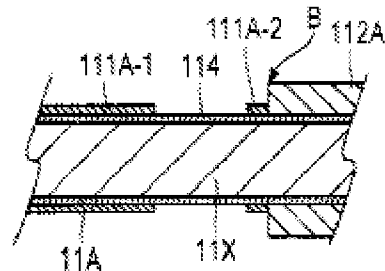


FIG.6c



Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP (5-90835).

JP ('835) discloses a connector with a terminal and a contact end. The mid-section of the connector is formed as an insulator in that flux and soldering cannot wet the section. Nickel plating and gold plating cover the connector. The nickel deposit is exposed.

The prior art discloses a product substantially similar to a claimed product, differing only in the manner by which it is produced. It has been held that one of ordinary skill in the art at the time of the invention would have considered the claimed product because of the similarity in properties. The burden falls to the applicant to show that any process steps associated with the claimed product result in a materially different product from those of the prior art, because there is nothing in the record before the examiner to reasonably conclude that applicant's product differs in kind from those obtained by the reference. See In re Brown 173 USPQ 685 and In re Fessman 180 USPQ 324.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moriuchi et al. (USPN 5,957,736).

Moriuchi et al. discloses an electronic part, that is, a contact. The contact (1) has a terminal portion (2) and contact portion (3). The contact may be plated with nickel, gold, palladium tin and so forth. The nickel oxide portion (4) prevents the solder from wicking, that is, diffusion prevention area due to the low wettability.

The prior art discloses a product substantially similar to a claimed product, differing only in the manner by which it is produced. It has been held that one of ordinary skill in the art at the time of the invention would have considered the claimed product because of the similarity in properties. The burden falls to the applicant to show that any process steps associated with the claimed product result in a materially different product from those of the prior art, because there is nothing in the record before the examiner to reasonably conclude that applicant's product differs in kind from those obtained by the reference. See In re Brown 173 USPQ 685 and In re Fessman 180 USPQ 324.

Claims 6-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP (5-90835) as stated above and further in view of JP (60-238489).

JP ('835) does not disclose the use of lasers in the formation of the plated layers. JP ('489) discloses the formation of a metallic coating (contains Ni) in which a laser

Art Unit: 3742

melts the metallic film forming an amorphous film. The amorphous film has high corrosion resistance, toughness and strength.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a laser beam, as taught by JP ('489) in the JP ('835) system because of the enhanced material properties with the new film.

Claims 6-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moriuchi et al. as stated above and further in view of JP (60-238489).

Moriuchi et al. does not disclose the use of lasers in the formation of the plated layers.

JP ('489) discloses the formation of a metallic coating (contains Ni) in which a laser melts the metallic film forming an amorphous film. The amorphous film has high corrosion resistance, toughness and strength.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a laser beam, as taught by JP ('489) in the Moriuchi et al. system because of the enhanced material properties with the new film.

Claims 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saito et al., as stated above and further in view of Hashimoto et al. (USPN 4,772,773).

Saito et al. discloses the use of lasers but not their properties.

Hashimoto et al. discloses the processing of overlaid amorphous alloys layers. A laser melts the alloy layers and the vitrified phase is less than 10^{-2} sec. The beam

Art Unit: 3742

irradiation time for melting must be smaller than $5 \text{ joule} \cdot \text{sec} / \text{cm}^2$. The 200 W CO_2 laser whose diameter on the specimen surface was $100 \text{ } \mu\text{m}$ was irradiated during the movement of the specimen along the x-axis at 436 mm/sec . The amorphous alloys thus formed have a very high mechanical strength with a considerable toughness, and some of them possess extremely high corrosion resistance.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a laser beam, as taught by Hashimoto et al. in the Saito et al. system because of the enhanced material properties with the new film.

Claims 6-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP (5-90835) as stated above and further in view of Hashimoto et al. (USPN 4,772,773).

JP ('835) does not disclose the use of lasers and their properties.

Hashimoto et al. discloses the processing of overlaid amorphous alloys layers. A laser melts the alloy layers and the vitrified phase is less than 10^{-2} sec . The beam irradiation time for melting must be smaller than $5 \text{ joule} \cdot \text{sec} / \text{cm}^2$. The 200 W CO_2 laser whose diameter on the specimen surface was $100 \text{ } \mu\text{m}$ was irradiated during the movement of the specimen along the x-axis at 436 mm/sec . The amorphous alloys thus formed have a very high mechanical strength with a considerable toughness, and some of them possess extremely high corrosion resistance.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a laser beam, as taught by Hashimoto et al. in the JP ('835) system because of the enhanced material properties with the new film.

Claim 6-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moriuchi et al. as stated above and further in view of Hashimoto et al. (USPN 4,772,773).

Moriuchi et al. does not disclose the use of lasers and their properties.

Hashimoto et al. discloses the processing of overlaid amorphous alloys layers. A laser melts the alloy layers and the vitrified phase is less than 10^{-2} sec. The beam irradiation time for melting must be smaller than 5 joule.sec/cm². The 200 W CO₂ laser whose diameter on the specimen surface was 100 μm was irradiated during the movement of the specimen along the x-axis at 436 mm/sec. The amorphous alloys thus formed have a very high mechanical strength with a considerable toughness, and some of them possess extremely high corrosion resistance.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a laser beam, as taught by Hashimoto et al. in the Moriuchi et al. system because of the enhanced material properties with the new film.

(10) Response to Argument

A. The rejection of claims 1 and 6-16 and 20-22 under 35 USC § 102(b) as being anticipated by Saito et al. (USPN 6,712,625) is improper and the decision to reject claims 1 and 6-2 on this ground should be reversed.

Independent claim 1:

Appellant argues that claim one teaches a contact for a connector having a terminal portion, a contacting portion and a diffusion preventing area. The diffusion preventing area includes 1) the foundation nickel plating layer unsheathed due to evaporation and removal of at least a portion of the gold or metal alloy including gold and 2) at least one selected from the following; (2-1) a metal alloy layer formed of alloying gold and nickel; (2-2) a diffusion layer formed of diffusing a material except gold of the metal alloy including gold; and (2-3) a metal layer which is formed of evaporation and removing at least a portion of the gold and alloying the remaining gold and nickel. Appellant argues further that Saito et al. does not disclose these claim limitations. The examiner respectfully disagrees because Saito et al. discloses:

Art Unit: 3742

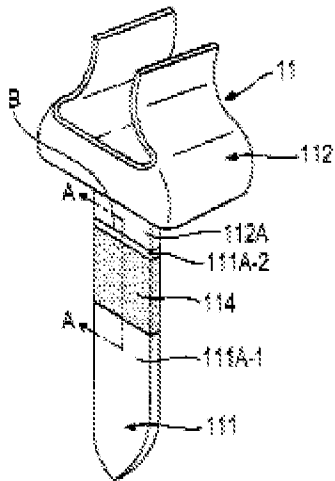


Figure 6a: Saito et al.

11 contact

111 terminal section

112 contact section

114 exposed portion having poor wettability (same as low wetting property and thus is a diffusion preventing area)

For the material of which the base member of the contact 11 is made, where the exposed surface region of the base member is utilized as the arresting means, it is preferable to use copper, copper alloy such as Cu--Ti, Cu--Be, Cu--Sn, Cu--Mg, Cu--Ni, and Cu--Zn alloy which may contain P or Si as additives, and other metals such as Co, Mn, Pb, Al, Fe, and SUS.

As to the finish plating material applied to the surface of the contact 11, it is preferably to use gold..

... a primer plating layer comprising a nickel alloy, such as Ni--P, Ni--S, or Ni--B alloy, may be applied to the surface of the base member of the contact 11 prior to forming the finish plating layer so as to enhance fastened formation of the finish plating. (col.c 3, lines 51-67)

Art Unit: 3742

Additionally, the examiner notes that claim one does not require all the claim limitations; that is, ***at least one selected from the following***. Saito et al., however, does teach all the claims limitations, as follows:

...feasible to form a contact with terminal section and contact section in any desirable shape by molding of any suitable material, by forming a Ni alloy layer all over the surface of the contact through electro-less plating, by forming a finish gold plating on the primer plating, and by removing a part of the gold plating at the terminal section to thereby obtain an exposed portion 114 of the primer plating acting as the arresting means. (col. 4, lines 8-15)

...the finish plating material applied to the surface of the contact 11, it is preferably to use gold, tin or tin alloy such as Sn--Ag, Sn--Cu, Sn--Cu--Ag alloy, and lead or lead alloy such as Pb--Sn alloy, and palladium or palladium alloy such as Pd--Ni, Pd--Co alloy. (col. 3, lines 57-61)

...a primer plating layer comprising a nickel alloy, such as Ni-P, Ni--S, or Ni--B alloy, may be applied to the surface of the base member of the contact 11 prior to forming the finish plating layer so as to enhance fastened formation of the finish plating. (col. 3, lines 62-67)

The process of selectively removing a portion of the highly wettable layer formed on the surface of the contact 11 to define the poorly wettable exposed portion 114 may be easily carried out with a good processing positional precision by applying the mechanical cutting or grinding (machining) technique, electric discharge machining technique, electron-beam machining technique or laser beam machining technique to the region in which the poorly wettable exposed portion 114 is to be formed. (col. 4, lines 24-33)

...removing processing of the plating layer by means of such as laser irradiation... (col. 6, lines 66-67)

Consequently, Saito et al. discloses a contact for a connector with a terminal and contacting portion having a (foundation) nickel plating layer and a gold plating layer

Art Unit: 3742

(finishing/final layer). The contact and hence the plating layers are subjected to a laser beam (irradiation) which yields a diffusion preventing area (low wettability property) with respect to the solder so that melted solder rarely diffuses thereon.

Appellant argues that Saito et al. only has the feature which corresponds to the diffusion preventing area of the instant invention, has only the feature of the foundation plating layer unsheathed due to evaporation and the removal of at least a portion of gold and therefore does not meet all of the claim limitations. The examiner respectfully disagrees because Saito et al. teaches that a portion of the plating may be removed; as follows:

...removing a part of the gold plating.. (col. 4, lines 12-13)

And

...selectively removing a portion of the highly wettable layer formed on the surface of the contact 11... (col. 4, lines 24-25)

Appellant argues that the examiner has taken the position that poor wettability and diffusion prevention are functional equivalents and that Saito et al. does not disclose this. The examiner respectfully notes that Appellant's claim state a diffusion preventing area... which has low wetting property with respect to solder. Furthermore, Saito et al. discloses the exposed portion is formed by laser beam irradiation. The laser irradiation removes some of the gold plating layer and exposes some of the nickel plating layer. Laser irradiation which removes material is known as laser ablation; laser

Art Unit: 3742

ablation involves vaporization of materials in the removal process. Thus the laser irradiation (ablation) removes some of the gold plating layer; exposes (unsheathed) the nickel plating layer (which is under the gold plating layer). As taught by Saito et al. gold has good wettability while nickel has poor wettability, hence if nickel is exposed the region becomes poorly wettable and thus negates diffusion of solder (i.e. diffusion preventing area).

Appellant argues that Saito et al. does not disclose the use of metal alloy including gold as a finishing plating layer, so that it is impossible to form (2-2) (i.e. a diffusion layer formed of diffusing a material except gold of the metal alloy including gold) and (2-3) (i.e. a metal alloy layer which is formed of evaporation and removal of at least a part of the gold and alloying the remaining gold and nickel). The examiner respectfully notes that claim one does not require all the limitation which appellant has listed.

Claim one states.... the diffusion preventing area has the foundation nickel plating layer unsheathed owing to evaporation and removing of at least a part of gold or metal alloy including gold, and ***at least one selected among*** (2-1) ***a metal alloy layer formed of alloying gold and nickel,*** (2-2) ***a diffusion layer formed of diffusing a material except gold of the metal alloy including gold,*** and (2-3) ***a metal alloy layer which is formed of evaporation and removing at least a part of gold and alloying remained gold and nickel.*** Thus only one of the limitations of the at least one selected among is absolutely required in order to meet the claim limitations.

Art Unit: 3742

Furthermore, Saito et al. does disclose a finishing plating layer of gold because only a portion of the gold plating layer may be removed. Thus the remaining diffusion prevention area would be comprised of a nickel plating layer and a partial gold plating layer which makes up a nickel-gold aggregate. Partial because some of the gold plating layer has been removed by laser irradiation.

Appellant argues that Saito et al. does not disclose a contact for a connector including, inter alia, a terminal portion, a contacting portion, and "a diffusion preventing area formed between the terminal portion and the contacting portion by irradiation laser beams on the gold plating layer or the metal alloy plating layer including gold, which has a low wetting property with respect to solder so that melted solder rarely diffuses thereon, wherein the diffusion preventing area has the foundation nickel plating layer unsheathed owing to evaporation and removing of at least a part of gold or metal alloy including gold, and at least one selected among a metal alloy layer formed of alloying gold and nickel, a diffusion layer formed of diffusing a material except gold of the metal alloy including gold, and a metal alloy layer which is formed of evaporation and removing at least a part of gold and alloying remained gold and nickel", as set forth in claim 1. The examiner respectfully disagrees because Saito et al. discloses a contact for a connector which includes a terminal portion, a contacting portion and a diffusion preventing area formed between the terminal portion and the contact portion:

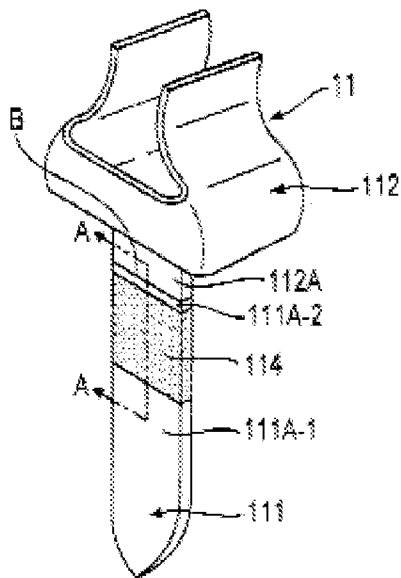


Figure 6a: Saito et al.

11 contact

111 terminal section

112 contact section

114 exposed portion having poor wettability (same as low wetting property and thus is a diffusion preventing area)

The exposed portion is formed by laser beam irradiation. The laser irradiation removes some of the gold plating layer and exposes some of the nickel plating layer. Laser irradiation which removes material is well known in the art as laser ablation; laser ablation involves vaporization of materials in the removal process. Thus the laser irradiation (ablation) evaporates and removes some of the gold plating layer; exposes (unsheathed) the nickel plating layer (which is under the gold plating layer). As taught by Saito et al. gold has good wettability while nickel has poor wettability, hence if nickel is exposed, the region becomes poorly wettable and thus negates diffusion of solder

Art Unit: 3742

(i.e. diffusion preventing area). Additionally, if a composition is physically the same, it must have the same properties. A chemical composition and its properties are inseparable. Therefore the prior art teaches the same chemical composition, the properties of instant claims are necessarily present. See *In re Spada*, 15 USPQ 2d 1655, 1658. Claim 1 further requires, **at least one selected among** a metal alloy layer formed of alloying gold and nickel, a diffusion layer formed of diffusing a material except gold of the metal alloy including gold, and a metal alloy layer which is formed of evaporation and removing at least a part of gold and alloying remained gold and nickel. Saito et al. discloses a finishing plating layer of gold because only a portion of the gold plating layer may be removed. Thus the remaining diffusion prevention area would be comprised of a nickel plating layer and a partial gold plating layer which makes up a nickel-gold aggregate. Partial because some of the gold plating layer has been removed by laser irradiation.

Saito et al. teaches that a portion of the plating may be removed; as follows:

...removing a part of the gold plating... (col. 4, lines 12-13)

And

...selectively removing a portion of the highly wettable layer formed on the surface of the contact 11... (col. 4, lines 24-25)

Art Unit: 3742

Independent Claim 6:

Appellant argues that claim six teaches an element for manufacture having a contact for a connector having a terminal portion, a contacting portion and a diffusion preventing area. The diffusion preventing area includes 1) the foundation nickel plating layer unsheathed due to evaporation and removal of at least a portion of the gold or metal alloy including gold and 2) at least one selected from the following; (2-1) a metal alloy layer formed of alloying gold and nickel; (2-2) a diffusion layer formed of diffusing a material except gold of the metal alloy including gold; and (2-3) a metal layer which is formed of evaporation and removing at least a portion of the gold and alloying the remaining gold and nickel. Appellant argues further that Saito et al. does not disclose these claim limitations. The examiner respectfully disagrees because claim six does not require all the claim limitations; that is, ***at least one selected from the following***.

Furthermore, Saito et al. does teach all the claims limitations, as follows:

...feasible to form a contact with terminal section and contact section in any desirable shape by molding of any suitable material, by forming a Ni alloy layer all over the surface of the contact through electro-less plating, by forming a finish gold plating on the primer plating, and by removing a part of the gold plating at the terminal section to thereby obtain an exposed portion 114 of the primer plating acting as the arresting means. (col. 4, lines 8-15)

...the finish plating material applied to the surface of the contact 11, it is preferably to use gold, tin or tin alloy such as Sn--Ag, Sn--Cu, Sn--Cu--Ag alloy, and lead or lead alloy such as Pb--Sn alloy, and palladium or palladium alloy such as Pd--Ni, Pd--Co alloy. (col. 3, lines 57-61)

...a primer plating layer comprising a nickel alloy, such as Ni-P, Ni--S, or Ni--B alloy, may be applied to the surface of the base

Art Unit: 3742

member of the contact 11 prior to forming the finish plating layer so as to enhance fastened formation of the finish plating. (col. 3, lines 62-67)

The process of selectively removing a portion of the highly wettable layer formed on the surface of the contact 11 to define the poorly wettable exposed portion 114 may be easily carried out with a good processing positional precision by applying the mechanical cutting or grinding (machining) technique, electric discharge machining technique, electron-beam machining technique or laser beam machining technique to the region in which the poorly wettable exposed portion 114 is to be formed. (col. 4, lines 24-33)

...removing processing of the plating layer by means of such as laser irradiation... (col. 6, lines 66-67)

Consequently, Saito et al. discloses a contact for a connector with a terminal and contacting portion having a metallic base member, a (foundation) nickel plating layer and a gold plating layer. The contact and hence the plating layers are subjected to a laser beam (irradiation) which yields a diffusion preventing area (low wettability property) with respect to the solder so that melted solder rarely diffuses thereon.

Appellant argues that Saito et al. only has the feature which corresponds to the diffusion preventing area of the instant invention, has only the feature of the foundation plating layer unsheathed due to evaporation and the removal of at least a portion of gold and therefore does not meet all of the claim limitations. The examiner respectfully disagrees because Saito et al. teaches that a portion of the plating may be removed; as follows:

...removing a part of the gold plating... (col. 4, lines 12-13)

Art Unit: 3742

And

...selectively removing a portion of the highly wettable layer formed on the surface of the contact 11... (col. 4, lines 24-25)

Appellant argues that Saito et al. does not disclose the use of metal alloy including gold as a finishing plating layer, so that it is impossible to form (2-2) (i.e. a diffusion layer formed of diffusing a material except gold of the metal alloy including gold) and (2-3) (i.e. a metal alloy layer which is formed of evaporation and removal of at least a part of the gold and alloying the remaining gold and nickel). The examiner respectfully notes that the claim six does not require all the limitation which appellant has listed.

Claim six states.... the diffusion preventing area has the foundation nickel plating layer unsheathed owing to evaporation and removing of at least a part of gold or metal alloy including gold, and ***at least one selected among*** (2-1) ***a metal alloy layer formed of alloying gold and nickel,*** (2-2) ***a diffusion layer formed of diffusing a material except gold of the metal alloy including gold,*** and (2-3) ***a metal alloy layer which is formed of evaporation and removing at least a part of gold and alloying remained gold and nickel.*** Thus only one of the limitations of the at least one selected among is absolutely required in order to meet the claim limitations.

Furthermore, Saito et al. does disclose a finishing plating layer of gold because only a portion of the gold plating layer may be removed. Thus the remaining diffusion prevention area would be comprised of a nickel plating layer and a partial gold plating

Art Unit: 3742

layer which makes up a nickel-gold aggregate. Partial because some of the gold plating layer has been removed by laser irradiation.

Appellant argues that the examiner has taken the position that poor wettability and diffusion prevention are functional equivalents and that Saito et al. does not disclose this. The examiner respectfully notes that Appellant's claim state a diffusion preventing area... which has low wetting property with respect to solder. Furthermore, Saito et al. discloses the exposed portion is formed by laser beam irradiation. The laser irradiation removes some of the gold plating layer and exposes some of the nickel plating layer. Laser irradiation which removes material is known as laser ablation; laser ablation involves vaporization of materials in the removal process. Thus the laser irradiation (ablation) removes some of the gold plating layer; exposes (unsheathed) the nickel plating layer (which is under the gold plating layer). As taught by Saito et al. gold has good wettability while nickel has poor wettability, hence if nickel is exposed the region becomes poorly wettable and thus negates diffusion of solder (i.e. diffusion preventing area).

Claim 7:

Appellant argues that Saito et al. fails to disclose "the diffusion preventing area is formed by unsheathing the foundation nickel plating layer owing to evaporation and removing at least a part of the gold or metal alloy including gold when laser beams are

Art Unit: 3742

irradiated on the gold plating layer or the metal alloy plating layer including gold. The examiner respectfully disagrees because

Furthermore, Saito et al. does teach all the claims limitations, as follows:

...feasible to form a contact with terminal section and contact section in any desirable shape by molding of any suitable material, by forming a Ni alloy layer all over the surface of the contact through electro-less plating, by forming a finish gold plating on the primer plating, and by removing a part of the gold plating at the terminal section to thereby obtain an exposed portion 114 of the primer plating acting as the arresting means. (col. 4, lines 8-15)

...the finish plating material applied to the surface of the contact 11, it is preferably to use gold, tin or tin alloy such as Sn--Ag, Sn--Cu, Sn--Cu--Ag alloy, and lead or lead alloy such as Pb--Sn alloy, and palladium or palladium alloy such as Pd--Ni, Pd--Co alloy. (col. 3, lines 57-61)

...a primer plating layer comprising a nickel alloy, such as Ni-P, Ni--S, or Ni--B alloy, may be applied to the surface of the base member of the contact 11 prior to forming the finish plating layer so as to enhance fastened formation of the finish plating. (col. 3, lines 62-67)

The process of selectively removing a portion of the highly wettable layer formed on the surface of the contact 11 to define the poorly wettable exposed portion 114 may be easily carried out with a good processing positional precision by applying the mechanical cutting or grinding (machining) technique, electric discharge machining technique, electron-beam machining technique or laser beam machining technique to the region in which the poorly wettable exposed portion 114 is to be formed. (col. 4, lines 24-33)

...removing processing of the plating layer by means of such as laser irradiation... (col. 6, lines 66-67)

Consequently, Saito et al. discloses a contact for a connector with a terminal and contacting portion having a (foundation) nickel plating layer and a gold plating layer.

Art Unit: 3742

The contact and hence the plating layers are subjected to a laser beam (irradiation) which yields a diffusion preventing area (low wettability property) with respect to the solder so that melted solder rarely diffuses thereon.

Saito et al. discloses a contact for a connector which includes a terminal portion, a contacting portion and a diffusion preventing area formed between the terminal portion and the contact portion:

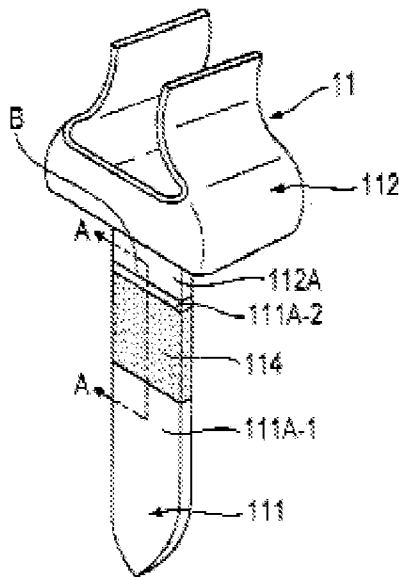


Figure 6a: Saito et al.

11 contact

111 terminal section

112 contact section

114 exposed portion having poor wettability (same as low wetting property and thus is a diffusion preventing area)

Art Unit: 3742

The exposed portion is formed by laser beam irradiation. The laser irradiation removes some of the gold plating layer and exposes some of the nickel plating layer. Laser irradiation which removes material is known as laser ablation; laser ablation involves vaporization of materials in the removal process. Thus the laser irradiation (ablation) evaporates and removes some of the gold plating layer; exposes (unsheathed) the nickel plating layer (which is under the gold plating layer). As taught by Saito et al. gold has good wettability while nickel has poor wettability, hence if nickel is exposed the region becomes poorly wettable and thus negates diffusion of solder (i.e. diffusion preventing area). Additionally, if a composition is physically the same, it must have the same properties. A chemical composition and its properties are inseparable. Therefore the prior art teaches the same chemical composition, the properties of instant claims are necessarily present. See *In re Spada*, 15 USPQ 2d 1655, 1658. Claim 6 further requires, **at least one selected among** a metal alloy layer formed of alloying gold and nickel, a diffusion layer formed of diffusing a material except gold of the metal alloy including gold, and a metal alloy layer which is formed of evaporation and removing at least a part of gold and alloying remained gold and nickel and Saito et al. discloses a finishing plating layer of gold because only a portion of the gold plating layer may be removed. Thus the remaining diffusion prevention area would be comprised of a nickel plating layer and a partial gold plating layer which makes up a nickel-gold aggregate. Partial because some of the gold plating layer has been removed by laser irradiation. Saito et al. teaches that a portion of the plating may be removed; as follows:

...removing a part of the gold plating.. (col. 4, lines 12-13)

Art Unit: 3742

And

...selectively removing a portion of the highly wettable layer formed on the surface of the contact 11... (col. 4, lines 24-25)

Claim 8:

Appellant argues that Saito et al. fails to disclose that at least a part of the diffusion preventing area is a metal alloy layer formed of alloying gold and nickel at a portion irradiated by laser beams when the laser beams are irradiated on the gold plating layer.

Furthermore, Saito et al. does teach all the claims limitations, as follows:

...feasible to form a contact with terminal section and contact section in any desirable shape by molding of any suitable material, by forming a Ni alloy layer all over the surface of the contact through electro-less plating, by forming a finish gold plating on the primer plating, and by removing a part of the gold plating at the terminal section to thereby obtain an exposed portion 114 of the primer plating acting as the arresting means. (col. 4, lines 8-15)

...the finish plating material applied to the surface of the contact 11, it is preferably to use gold, tin or tin alloy such as Sn--Ag, Sn--Cu, Sn--Cu--Ag alloy, and lead or lead alloy such as Pb--Sn alloy, and palladium or palladium alloy such as Pd--Ni, Pd--Co alloy. (col. 3, lines 57-61)

...a primer plating layer comprising a nickel alloy, such as Ni-P, Ni--S, or Ni--B alloy, may be applied to the surface of the base member of the contact 11 prior to forming the finish plating layer so as to enhance fastened formation of the finish plating. (col. 3, lines 62-67)

Art Unit: 3742

The process of selectively removing a portion of the highly wettable layer formed on the surface of the contact 11 to define the poorly wettable exposed portion 114 may be easily carried out with a good processing positional precision by applying the mechanical cutting or grinding (machining) technique, electric discharge machining technique, electron-beam machining technique or laser beam machining technique to the region in which the poorly wettable exposed portion 114 is to be formed. (col. 4, lines 24-33)

...removing processing of the plating layer by means of such as laser irradiation... (col. 6, lines 66-67)

Consequently, Saito et al. discloses a contact for a connector with a terminal and contacting portion having a (foundation) nickel plating layer and a gold plating layer. The contact and hence the plating layers are subjected to a laser beam (irradiation) which yields a diffusion preventing area (low wettability property) with respect to the solder so that melted solder rarely diffuses thereon.

Appellant argues that Saito et al. only has the feature which corresponds to the diffusion preventing area of the instant invention, has only the feature of the foundation plating layer unsheathed due to evaporation and the removal of at least a portion of gold and therefore does not meet all of the claim limitations. The examiner respectfully disagrees because Saito et al. teaches that a portion of the plating may be removed; as follows:

...removing a part of the gold plating... (col. 4, lines 12-13)

And

Art Unit: 3742

...selectively removing a portion of the highly wettable layer formed on the surface of the contact 11... (col. 4, lines 24-25)

Furthermore, Saito et al. do disclose a finishing plating layer of gold because only a portion of the gold plating layer may be removed. Thus the remaining diffusion prevention area would be comprised of a nickel plating layer and a partial gold plating layer which makes up a nickel-gold aggregate. Partial because some of the gold plating layer has been removed by laser irradiation.

Claim 9:

Appellant argues that Saito et al. fails to disclose wherein at least a part of the diffusion preventing area is a diffusion layer formed of diffusing a material except gold of the metal alloy on a surface at a portion irradiated by laser beams when the laser beams are irradiated on the metal alloy plating layer. The examiner respectfully disagrees because Saito et al. does disclose a finishing plating layer of gold because only a portion of the gold plating layer may be removed. Thus the remaining diffusion prevention area would be comprised of a nickel plating layer and a partial gold plating layer which makes up a nickel-gold aggregate. Partial because some of the gold plating layer has been removed by laser irradiation. The exposed (unsheathed) portion is formed by laser beam irradiation. The laser irradiation evaporates and removes some of the gold plating layer and exposes some of the nickel plating layer. Laser

Art Unit: 3742

irradiation which removes material is known as laser ablation; laser ablation involves vaporization of materials in the removal process. Thus the laser irradiation (ablation) removes some of the gold plating layer; exposes (unsheathed) the nickel plating layer (which is under the gold plating layer).

Claim 10:

Appellant argues that Saito et al. fails to disclose wherein the diffusion preventing area is a metal alloy layer which is formed of evaporation and removing at least a part of the gold and alloying remaining gold and nickel. The examiner respectfully disagrees because Saito et al. discloses a finishing plating layer of gold because only a portion of the gold plating layer may be removed. Thus the remaining diffusion prevention area would be comprised of a nickel plating layer and a partial gold plating layer which makes up a nickel-gold aggregate. Partial because some of the gold plating layer has been removed by laser irradiation. The exposed (unsheathed) portion is formed by laser beam irradiation. The laser irradiation removes some of the gold plating layer and exposes some of the nickel plating layer. Laser irradiation which removes material is known as laser ablation; laser ablation involves vaporization of materials in the removal process. Thus the laser irradiation (ablation) evaporates and removes some of the gold plating layer; exposes (unsheathed) the nickel plating layer (which is under the gold plating layer).

Art Unit: 3742

Claim 11:

Appellant argues that Saito et al. fails to disclose wherein a removing solution of gold is acted to the gold plating layer or the metal alloy plating layer including gold at a portion including at least an area where the laser beams will be irradiated, before irradiating the laser beams. The examiner respectfully disagrees because Saito et al. discloses:

Processing with the use of liquid (such as plating and coating) ... the location and area where such processing is to be conducted. Especially, the plating process requires the operations of controlling the liquid level and using a tape or a jig for masking, leading to deterioration in the accuracy in the location where the plating region is to be formed. Consequently, it is difficult to conduct the plating process consistently with tolerances less than 1 mm. (col. 2, lines 38-41)

In this regard, it should be appreciated that in contrast to the processing techniques involving a liquid such as plating and coating as used in the prior art, the processing techniques handling a solid such as removing the highly wettable coating according to the present invention is more suitable to enhance both the positional accuracy and the dimensional accuracy, leading to enhancement of the feasibility of volume production. (col. 9, lines 24-31)

Claim 12:

Appellant argues that Saito et al. fails to disclose wherein a removing solution of gold is acted on the gold plating layer or the metal alloy plating layer including gold at a portion including at least an area where the laser beams were irradiated, after irradiating the laser beams. The examiner respectfully disagrees because Saito et al. discloses:

Art Unit: 3742

Processing with the use of liquid (such as plating and coating) ... the location and area where such processing is to be conducted. Especially, the plating process requires the operations of controlling the liquid level and using a tape or a jig for masking, leading to deterioration in the accuracy in the location where the plating region is to be formed. Consequently, it is difficult to conduct the plating process consistently with tolerances less than 1 mm. (col. 2, lines 38-41)

In this regard, it should be appreciated that in contrast to the processing techniques involving a liquid such as plating and coating as used in the prior art, the processing techniques handling a solid such as removing the highly wettable coating according to the present invention is more suitable to enhance both the positional accuracy and the dimensional accuracy, leading to enhancement of the feasibility of volume production. (col. 9, lines 24-31)

Claim 13:

Appellant argues that Saito et al. fails to disclose wherein the foundation plating layer is a nickel plating layer. The examiner respectfully disagrees because Saito et al. discloses:

...feasible to form a contact with terminal section and contact section in any desirable shape by molding of any suitable material, by forming a Ni alloy layer all over the surface of the contact through electro-less plating, by forming a finish gold plating on the primer plating, and by removing a part of the gold plating at the terminal section to thereby obtain an exposed portion 114 of the primer plating acting as the arresting means. (col. 4, lines 8-15)

...a primer plating layer comprising a nickel alloy, such as Ni-P, Ni--S, or Ni--B alloy, may be applied to the surface of the base member of the contact 11 prior to forming the finish plating

Art Unit: 3742

layer so as to enhance fastened formation of the finish plating.
(col. 3, lines 62-67)

Claim 14:

Appellant argues that Saito et al. fails to disclose a palladium-nickel alloy plating layer formed on the foundation nickel plating layer. The examiner respectfully disagrees because Saito et al. discloses:

... a primer plating layer comprising a nickel alloy, such as Ni--P, Ni--S, or Ni--B alloy, may be applied to the surface of the base member of the contact 11 prior to forming the finish plating layer so as to enhance fastened formation of the finish plating. (col. 3, lines 62-67)

...As to the finish plating material applied to the surface of the contact 11, it is preferably to use gold, tin or tin alloy such as Sn--Ag, Sn--Cu, Sn--Cu--Ag alloy, and lead or lead alloy such as Pb--Sn alloy, and palladium or palladium alloy such as Pd--Ni, Pd--Co alloy. (col. 9, lines 57 & 60-61)

Claim 15:

Appellant argues Saito et al. fails to disclose wherein the metal alloy including gold is a gold-nickel alloy. The examiner respectfully disagrees because Saito et al. does disclose a finishing plating layer of gold because only a portion of the gold plating layer may be removed. Thus the remaining diffusion prevention area would be comprised of a nickel plating layer and a partial gold plating layer which makes up a nickel-gold aggregate. Partial because some of the gold plating layer has been removed by laser irradiation.

Claim 16:

Appellant argues that Saito et al. fails to disclose wherein the laser beams are irradiated at a portion in the vicinity of the terminal portion. The examiner respectfully disagrees because Saito et al. discloses a contact for a connector which includes a terminal portion, a contacting portion and a diffusion preventing area formed between the terminal portion and the contact portion:

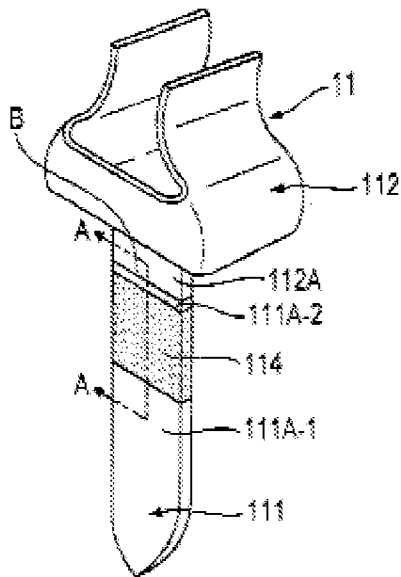


Figure 6a: Saito et al.

11 contact

111 terminal section

112 contact section

114 exposed portion having poor wettability (same as low wetting property and thus is a diffusion preventing area)

Art Unit: 3742

The exposed portion is formed by laser beam irradiation. Observation of figure 6a shows that the exposed portion-114 (irradiated by laser beams) is in the vicinity of the terminal portion-111.

Claim 20:

Appellant argues that the beam spot and so forth are not taught by Saito et al.

The examiner respectfully disagrees because Saito et al. discloses:

In other words, the exposed portion 114 may have various shapes in the finish plating layer 111A, for examples as shown in FIGS. 5q to 5s.

Particularly in FIG. 5s, a plurality of substantially circular-shape exposed portions having a diameter of 0.1 mm with a distance of 0.1 mm between mutually adjacent exposed portions are effective for arresting the weld brazing material. (col. 7, lines 60-67)

The laser apparatus is capable of direction and angular motion and thus pitch it known.

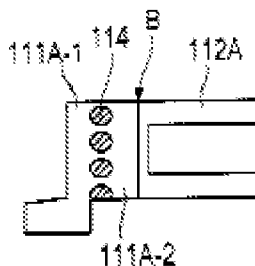


Figure 5s (Saito et al.)

Claim 22:

Appellant argues that Saito et al. fails to disclose wherein the element to be soldered is a contact for a connector and a contacting portion is formed in the vicinity of an opposite end of the terminal portion:

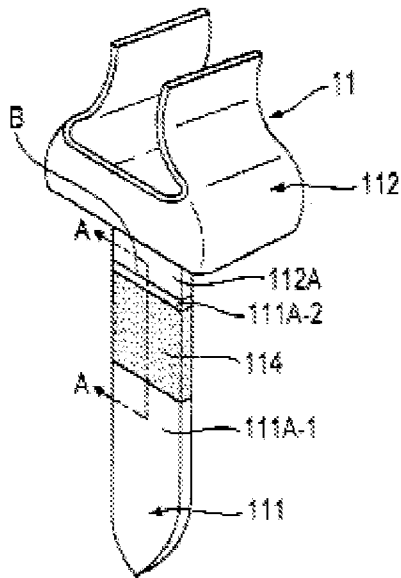


Figure 6a: Saito et al.

11 contact

111 terminal section

112 contact section

114 exposed portion having poor wettability (same as low wetting property and thus is a diffusion preventing area)

The exposed portion is formed by laser beam irradiation. Observation of figure 6a shows that the exposed portion-114 (irradiated by laser beams) is in the vicinity of the contact portion-112.

Art Unit: 3742

B. The rejection of claim 1 under 35 USC § 103(a) as being unpatentable over JP (5-90835) is improper, and the decision to reject claim 1 on this ground should be reversed.

Independent Claim 1:

Appellant argues that JP ('835) fails to disclose a diffusion preventing area including a foundation nickel plating layer unsheathed due to evaporation and removal of at least a part of gold or metal alloy including gold and so forth. It is the position of the examiner that JP ('835) discloses a contact (1) having a terminal end (2) (soldering terminal portion) and a contacting portion (4) and a "diffusion prevention area" (3). The entire contact (1) is nickel plated and then the contact portion is gold plated. The contact is designed such that the creeping up of flux at the contacting portion is prevented while soldering; the solder portion by the intermediate portion (3) inhibits the solder creeping. JP ('835) does not disclose the use of laser beams; however, a diffusion preventing area is disclosed. It is the position of the examiner that laser beam irradiation and unsheathed are process limitations and hence merely functional language. The prior art discloses a product substantially similar to a claimed product, differing only in the manner by which it is produced. It has been held that one of ordinary skill in the art at the time of the invention would have considered the claimed product because of the similarity in properties. The burden falls to the applicant to show that any process steps associated with the claimed product result in a materially different product from those of the prior art, because there is nothing in the record before the examiner to reasonably

Art Unit: 3742

conclude that applicant's product differs in kind from those obtained by the reference.

See In re Brown 173 USPQ 685 and In re Fessman 180 USPQ 324.

C. The rejection of claim 1 under 35 USC § 103(a) as being unpatentable over Moriuchi et al. (USPN 5,957,736) is improper, and the decision to reject claim 1 on this ground should be reversed.

Independent Claim 1:

Appellant argues that Moriuchi et al. fails to disclose, teach or suggest a diffusion preventing area including a foundation nickel plating layer unsheathed owing to evaporation and removing of at least a part of gold or metal alloy including gold, and at least one selected among a metal alloy layer formed of alloying gold and nickel, a diffusion layer formed of diffusing a material except gold of the metal alloy including gold, and a metal alloy layer which is formed of evaporation and removing at least a part of gold and alloying remained gold and nickel", as set forth in claim 1. The examiner respectfully disagrees because Moriuchi et al. discloses a contact (1) having a terminal portion (2) and a contact portion (3) and a diffusion prevention area (4). The diffusion prevention area prevents solder from wicking (i.e. poor wettability). The contact may be plated with nickel, gold, palladium and so forth.

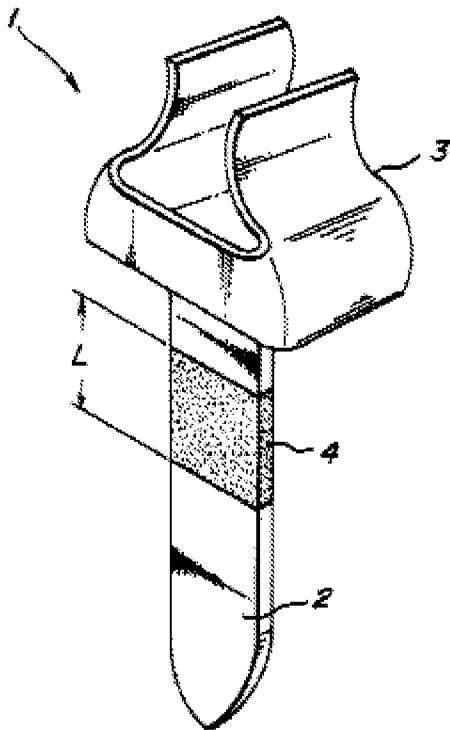


Figure 1 (Moriuchi et al.)

The prior art discloses a product substantially similar to a claimed product, differing only in the manner by which it is produced. It has been held that one of ordinary skill in the art at the time of the invention would have considered the claimed product because of the similarity in properties. The burden falls to the applicant to show that any process steps associated with the claimed product result in a materially different product from those of the prior art, because there is nothing in the record before the examiner to reasonably conclude that applicant's product differs in kind from those obtained by the reference. See In re Brown 173 USPQ 685 and In re Fessman 180 USPQ 324.

Art Unit: 3742

D. The rejection of claims 6-16 under 35 USC § 103(a) as being unpatentable over JP (5-90835) in view of JP (60-238489) is improper, and the decision to reject claims on this ground should be reversed.

Claims 6-16:

Appellant argues that JP ('835) fails to disclose a diffusion preventing area including a foundation nickel plating layer unsheathed due to evaporation and removal of at least a part of gold or metal alloy including gold and so forth. It is the position of the examiner that JP ('835) discloses a contact (1) having a terminal end (2) (soldering terminal portion) and a contacting portion (4) and a "diffusion prevention area" (3). The entire contact (1) is nickel plated and then the contact portion is gold plated. The contact is designed such that the creeping up of flux at the contacting portion is prevented while soldering the solder portion by the intermediate portion (3) which inhibits the solder creeping. JP ('835) does not disclose the use of laser beams; however, a diffusion preventing area is disclosed. Use of laser beams is taught by JP ('489).

Appellant argues the JP ('489) fails to disclose a diffusion preventing area including a foundation nickel plating layer unsheathed due to evaporation and removal of at least a part of gold or metal alloy including gold and so forth. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

E. The rejection of claims 6-16 under 35 USC § 103(a) as being unpatentable over Moriuchi et al. in view of JP (60-238489) is improper, and the decision of reject claims 6-16 on this ground should be reversed.

Claims 6-16:

Appellant argues that Moriuchi et al. fails to disclose a diffusion preventing area including a foundation nickel plating layer unsheathed due to evaporation and removal of at least a part of gold or metal alloy including gold and so forth. The examiner respectfully disagrees because Moriuchi et al. discloses a contact (1) having a terminal portion (2) and a contact portion (3) and a diffusion prevention area (4). The diffusion prevention area prevents solder from wicking (i.e. poor wettability). The contact may be plated with nickel, gold, palladium and so forth.

Appellant argues the JP ('489) fails to disclose a diffusion preventing area including a foundation nickel plating layer unsheathed due to evaporation and removal

Art Unit: 3742

of at least a part of gold or metal alloy including gold and so forth. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

F. The rejection of claims 17-19 under 35 USC § 103(a) as being unpatentable over Saito et al. in view of Hashimoto et al. is improper, and the decision to reject claims 17-19 on this ground should be reversed.

Claim 17:

Appellant argues that Saito et al. does not teach the limitations of claim 6 and Hashimoto et al. fails to cure the deficiencies. The examiner respectfully disagrees and has rebutted appellants argues with respect to the rejection of claim 6 in view of Saito et

Art Unit: 3742

al. in an above section. Furthermore, Hashimoto et al. is used to teach the properties of the laser, which meets the claim limitations.

Claim 18:

Appellant argues that Saito et al. does not teach the limitations of claim 6 and Hashimoto et al. fails to cure the deficiencies. The examiner respectfully disagrees and has rebutted appellants argues with respect to the rejection of claim 6 in view of Saito et al. in an above section. Furthermore, Hashimoto et al. is used to teach the properties of the laser, which meets the claim limitations.

Claim 19:

Appellant argues that Saito et al. does not teach the limitations of claim 6 and Hashimoto et al. fails to cure the deficiencies. The examiner respectfully disagrees and has rebutted appellants' arguments with respect to the rejection of claim 6 in view of Saito et al. in an above section. Furthermore, Hashimoto et al. is used to teach the properties of the laser, which meets the claim limitations.

Art Unit: 3742

G. The rejection of claims 6-22 under 35 USC § 103(a) as being unpatentable over JP (5-90835) in view of Hashimoto et al. is improper, and the decision to reject claims 6-22 on this ground should be reversed.

Claims 6-22:

Appellant argues JP ('835) fails to teach the limitations of claim 6 and Hashimoto et al. fails to cure the deficiencies. The examiner respectfully disagrees and has rebutted appellants' arguments with respect to the rejection of claim 6 in view of JP ('835) in an above section. Furthermore, Hashimoto et al. is used to teach the use of the laser, which meets the claims.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

H. The rejection of claims 6-22 under 35 USC § 103(a) as being unpatentable over Moriuchi et al. in view of Hashimoto et al. is improper, and the decision to reject claims 6-22 on this ground should be reversed.

Claims 6-22:

Appellant argues Moriuchi et al. fails to teach the limitations of claim 6 and Hashimoto et al. fails to cure the deficiencies. The examiner respectfully disagrees and has rebutted appellants' arguments with respect to the rejection of claim 6 in view of Moriuchi et al. in an above section. Furthermore, Hashimoto et al. is used to teach the use of the laser, which meets the claims.

Appellant argues that Hashimoto et al. does not teach a diffusion preventing area. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a

Art Unit: 3742

reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Conclusion:

Appellant argues that the rejection of Claims 1, 6-16 & 20-22 under 35 U.S.C. 102(b) as being anticipated by Saito et al. (USPN 6,712,625) is not supported by the evidence in the record and should therefore be reverse. It is the position of the examiner that Saito et al. has met the claim limitations and appellants' arguments have been fully rebutted.

Appellant argues that the rejection of Claim 1 under 35 U.S.C. 103(a) as being unpatentable over JP (5-90835) is not supported by the evidence in the record and should therefore be reverse. It is the position of the examiner that JP (5-90835) has met the claim limitations and appellants' arguments have been fully rebutted.

Appellant argues that the rejection of Claim 1 under 35 U.S.C. 103(a) as being unpatentable over Moriuchi et al. (USPN 5,957,736) is not supported by the evidence in the record and should therefore be reverse. It is the position of the examiner that Moriuchi et al. has met the claim limitations and appellants' arguments have been fully rebutted.

Appellant argues that the rejection of Claims 6-16 under 35 U.S.C. 103(a) as being unpatentable over JP (5-90835) in view of JP (60-238489) is not supported by the evidence in the record and should therefore be reverse. It is the position of the examiner

Art Unit: 3742

that JP (5-90835) and JP (60-238489) have met the claim limitations and appellants' arguments have been fully rebutted.

Appellant argues that the rejection of Claims 6-16 under 35 U.S.C. 103(a) as being unpatentable over Moriuchi et al. in view of JP (60-238489) is not supported by the evidence in the record and should therefore be reverse. It is the position of the examiner that Moriuchi et al. and JP (60-238489) have met the claim limitations and appellants' arguments have been fully rebutted.

Appellant argues that the rejection of Claims 17-19 under 35 U.S.C. 103(a) as being unpatentable over Saito et al. in view of Hashimoto et al. (USPN 4,772,773) is not supported by the evidence in the record and should therefore be reverse. It is the position of the examiner that Saito et al. and Hashimoto et al. have met the claim limitations and appellants' arguments have been fully rebutted.

Appellant argues that the rejection of Claims 6-22 under 35 U.S.C. 103(a) as being unpatentable over JP (5-90835) in view of Hashimoto et al. (USPN 4,772,773) is not supported by the evidence in the record and should therefore be reverse. It is the position of the examiner that JP (5-90835) and Hashimoto et al. have met the claim limitations and appellants arguments have been fully rebutted.

Appellant argues that the rejection of Claim 6-22 under 35 U.S.C. 103(a) as being unpatentable over Moriuchi et al. in view of Hashimoto et al. (USPN 4,772,773) is not supported by the evidence in the record and should therefore be reverse. It is the position of the examiner that Moriuchi et al. and Hashimoto et al. have met the claim limitations and appellants' arguments have been fully rebutted.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/M. Alexandra Elve/

Primary Examiner, Art Unit 3742

Conferees:

/TU B HOANG/

Supervisory Patent Examiner, Art Unit 3742

/Henry C. Yuen/

Special Programs Examiner, TC 3700